

CLAIMS

What is claimed is:

1. An isolated nucleic acid fragment encoding a calcium dependent phosphorylase kinase comprising a member selected from the group consisting of:
 - 5 (a) an isolated nucleic acid fragment encoding an amino acid sequence of at least 100 contiguous amino acids that is at least 90% identical to the amino acid sequence set forth in a member selected from the group consisting of SEQ ID NO:2, 6 and 8;
 - (b) an isolated nucleic acid fragment that is complementary to (a).
- 10 2. The isolated nucleic acid fragment of Claim 1 wherein nucleic acid fragment is a functional RNA.
3. The isolated nucleic acid fragment of Claim 1 wherein the nucleotide sequence of the fragment comprises the sequence set forth in a member selected from the group consisting of SEQ ID NO:1, 5 and 7.
- 15 4. A chimeric gene comprising the nucleic acid fragment of Claim 1 operably linked to suitable regulatory sequences.
5. A transformed host cell comprising the chimeric gene of Claim 4.
6. A calcium dependent phosphorylase kinase polypeptide comprising the amino acid sequence set forth in a member selected from the group consisting of SEQ ID NO:2, 6 and 8.
- 20 7. An isolated nucleic acid fragment encoding a calcium dependent phosphorylase kinase comprising a member selected from the group consisting of:
 - (a) an isolated nucleic acid fragment encoding the amino acid sequence set forth in SEQ ID NO:4;
 - 25 (b) an isolated nucleic acid fragment that is complementary to (a).
8. The isolated nucleic acid fragment of Claim 7 wherein nucleic acid fragment is a functional RNA.
9. The isolated nucleic acid fragment of Claim 7 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:3.
- 30 10. A chimeric gene comprising the nucleic acid fragment of Claim 7 operably linked to suitable regulatory sequences.
11. A transformed host cell comprising the chimeric gene of Claim 10.
12. A calcium dependent phosphorylase kinase polypeptide comprising the amino acid sequence set forth in SEQ ID NO:4.
- 35 13. An isolated nucleic acid fragment encoding a glycogen synthase kinase comprising a member selected from the group consisting of:
 - (a) an isolated nucleic acid fragment encoding an amino acid sequence of at least 400 amino acids that is at least 90% identical to the amino acid

sequence set forth in a member selected from the group consisting of
SEQ ID NO:10 and 16;

(b) an isolated nucleic acid fragment that is complementary to (a).

14. The isolated nucleic acid fragment of Claim 13 wherein nucleic acid fragment
5 is a functional RNA.

15. The isolated nucleic acid fragment of Claim 13 wherein the nucleotide
sequence of the fragment comprises the sequence set forth in a member selected from the
group consisting of SEQ ID NO:9 and 15.

16. A chimeric gene comprising the nucleic acid fragment of Claim 13 operably
10 linked to suitable regulatory sequences.

17. A transformed host cell comprising the chimeric gene of Claim 16.

18. A glycogen synthase kinase polypeptide comprising all or a substantial portion
of the amino acid sequence set forth in a member selected from the group consisting of SEQ
ID NO:10 and 16.

19. An isolated nucleic acid fragment encoding a glycogen synthase kinase
comprising a member selected from the group consisting of:

(a) an isolated nucleic acid fragment encoding an amino acid sequence of
at least 105 contiguous amino acids that is at least 80% identical to the
amino acid sequence set forth in SEQ ID NO:12;

(b) an isolated nucleic acid fragment that is complementary to (a).

20. The isolated nucleic acid fragment of Claim 19 wherein nucleic acid fragment
is a functional RNA.

21. The isolated nucleic acid fragment of Claim 19 wherein the nucleotide
sequence of the fragment comprises the sequence set forth in SEQ ID NO:11.

22. A chimeric gene comprising the nucleic acid fragment of Claim 19 operably
25 linked to suitable regulatory sequences.

23. A transformed host cell comprising the chimeric gene of Claim 22.

24. A glycogen synthase kinase polypeptide comprising the amino acid sequence
set forth in SEQ ID NO:12.

25. An isolated nucleic acid fragment encoding a glycogen synthase kinase
comprising a member selected from the group consisting of:

(a) an isolated nucleic acid fragment encoding the amino acid sequence set
forth in SEQ ID NO:14;

(b) an isolated nucleic acid fragment that is complementary to (a).

26. The isolated nucleic acid fragment of Claim 25 wherein nucleic acid fragment
is a functional RNA.

27. The isolated nucleic acid fragment of Claim 25 wherein the nucleotide
sequence of the fragment comprises the sequence set forth in SEQ ID NO:13.

28. A chimeric gene comprising the nucleic acid fragment of Claim 25 operably linked to suitable regulatory sequences.

29. A transformed host cell comprising the chimeric gene of Claim 28.

30. A glycogen synthase kinase polypeptide comprising the amino acid sequence

5 set forth in SEQ ID NO:14.

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